

0540
1130

OIPE

#3

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/938,406

DATE: 11/27/2001

TIME: 14:25:21

Input Set : D:\40646-20002.txt

Output Set: N:\CRF3\11212001\I938406.raw

ENTERED

```

4 <110> APPLICANT: Lowell, George
5     Vancott, Thomas
6     Birx, Deborah
8 <120> TITLE OF INVENTION: PROTEIN AND PEPTIDE VACCINES FOR
9     INDUCING MUCOSAL IMMUNITY
11 <130> FILE REFERENCE: 40646-20002.10
13 <140> CURRENT APPLICATION NUMBER: US 09/938,406
14 <141> CURRENT FILING DATE: 2001-08-21
16 <150> PRIOR APPLICATION NUMBER: US 09/214,701
17 <151> PRIOR FILING DATE: 1999-09-30
19 <150> PRIOR APPLICATION NUMBER: PCT/US 97/12253
20 <151> PRIOR FILING DATE: 1997-07-10
22 <150> PRIOR APPLICATION NUMBER: US 60/021,687
23 <151> PRIOR FILING DATE: 1996-07-10
26 <160> NUMBER OF SEQ ID NOS: 18
28 <170> SOFTWARE: FastSEQ for Windows Version 4.0
30 <210> SEQ ID NO: 1
31 <211> LENGTH: 868
32 <212> TYPE: PRT
33 <213> ORGANISM: Virus HIV-1
35 <400> SEQUENCE: 1
36 Met Ala Met Arg Ala Lys Gly Ile Arg Lys Asn Cys Gln His Leu Trp
37 1      5      10      15
38 Arg Trp Gly Thr Met Leu Leu Gly Met Leu Met Ile Cys Ser Ala Ala
39      20      25      30
40 Ala Asn Leu Trp Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys Glu
41      35      40      45
42 Ala Thr Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys Ala Tyr Asp Thr
43      50      55      60
44 Glu Ala His Asn Val Trp Ala Thr His Ala Cys Val Pro Thr Asn Pro
45 65      70      75      80
46 Asn Pro Gln Glu Val Val Leu Glu Asn Val Thr Glu Asn Phe Asn Met
47      85      90      95
48 Trp Lys Asn Asn Met Val Glu Gln Met His Glu Asp Ile Ile Ser Leu
49      100     105     110
50 Trp Asp Gln Ser Leu Lys Pro Cys Val Lys Leu Thr Pro Leu Cys Val
51      115     120     125
52 Thr Leu Asn Cys Thr Asp Leu Asn Thr Asn Asn Thr Thr Asn Thr Thr
53      130     135     140
54 Glu Leu Ser Ile Ile Val Val Trp Glu Gln Arg Gly Lys Gly Glu Met
55 145     150     155     160
56 Arg Asn Cys Ser Phe Asn Ile Thr Thr Ser Ile Arg Asp Lys Val Gln
57      165     170     175
58 Arg Glu Tyr Ala Leu Phe Tyr Lys Leu Asp Val Glu Pro Ile Asp Asp
59      180     185     190
60 Asn Lys Asn Thr Thr Asn Asn Thr Lys Tyr Arg Leu Ile Asn Cys Asn
61      195     200     205

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/938,406

DATE: 11/27/2001

TIME: 14:25:21

Input Set : D:\40646-20002.txt

Output Set: N:\CRF3\11212001\I938406.raw

```

62 Thr Ser Val Ile Thr Gln Ala Cys Pro Lys Val Ser Phe Glu Pro Ile
63      210                      215                      220
64 Pro Ile His Tyr Cys Thr Pro Thr Gly Phe Ala Leu Leu Lys Cys Asn
65 225                      230                      235                      240
66 Asp Lys Lys Phe Asn Gly Thr Gly Pro Cys Thr Asn Val Ser Thr Val
67                      245                      250                      255
68 Gln Cys Thr His Gly Ile Arg Pro Val Val Ser Thr Gln Leu Leu Leu
69                      260                      265                      270
70 Asn Gly Ser Leu Ala Glu Glu Glu Val Val Ile Arg Ser Glu Asn Phe
71                      275                      280                      285
72 Thr Asn Asn Ala Lys Thr Ile Ile Val Gln Leu Asn Val Ser Val Glu
73      290                      295                      300
74 Ile Asn Cys Thr Arg Pro Asn Asn His Thr Arg Lys Arg Val Thr Leu
75 305                      310                      315                      320
76 Gly Pro Gly Arg Val Trp Tyr Thr Thr Gly Glu Ile Leu Gly Asn Ile
77                      325                      330                      335
78 Arg Gln Ala His Cys Asn Ile Ser Arg Ala Gln Trp Asn Asn Thr Leu
79                      340                      345                      350
80 Gln Gln Ile Ala Thr Thr Leu Arg Glu Gln Phe Gly Asn Lys Thr Ile
81                      355                      360                      365
82 Ala Phe Asn Gln Ser Ser Gly Gly Asp Pro Glu Ile Val Met His Ser
83      370                      375                      380
84 Phe Asn Cys Gly Gly Glu Phe Phe Tyr Cys Asn Ser Thr Gln Leu Phe
85 385                      390                      395                      400
86 Asn Ser Ala Trp Asn Val Thr Ser Asn Gly Thr Trp Ser Val Thr Arg
87                      405                      410                      415
88 Lys Gln Lys Asp Thr Gly Asp Ile Ile Thr Leu Pro Cys Arg Ile Lys
89                      420                      425                      430
90 Gln Ile Ile Asn Arg Trp Gln Val Val Gly Lys Ala Met Tyr Ala Leu
91                      435                      440                      445
92 Pro Ile Lys Gly Leu Ile Arg Cys Ser Ser Asn Ile Thr Gly Leu Leu
93      450                      455                      460
94 Leu Thr Arg Asp Gly Gly Glu Asn Gln Thr Thr Glu Ile Phe Arg
95 465                      470                      475                      480
96 Pro Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
97                      485                      490                      495
98 Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala
99                      500                      505                      510
100 Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Met Leu Gly
101                      515                      520                      525
102 Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala
103      530                      535                      540
104 Thr Ser Met Ala Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile
105 545                      550                      555                      560
106 Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Lys Ala Gln Gln His
107                      565                      570                      575
108 Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile
109                      580                      585                      590
110 Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Phe Trp

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/938,406

DATE: 11/27/2001

TIME: 14:25:21

Input Set : D:\40646-20002.txt

Output Set: N:\CRF3\11212001\I938406.raw

```

111          595          600          605
112 Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala
113      610          615          620
114 Ser Trp Ser Asn Lys Thr Leu Asp Gln Ile Trp Asn Asn Met Thr Trp
115 625          630          635          640
116 Met Glu Trp Asp Arg Glu Ile Asp Asn Tyr Thr His Leu Ile Tyr Thr
117      645          650          655
118 Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Gln Gln Glu Leu
119      660          665          670
120 Leu Gln Leu Asp Lys Trp Ala Ser Leu Trp Thr Trp Ser Asp Ile Thr
121      675          680          685
122 Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu
123      690          695          700
124 Ile Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val
125 705          710          715          720
126 Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Leu Pro Asn Pro
127      725          730          735
128 Arg Gly Pro Asp Arg Pro Glu Gly Thr Glu Glu Gly Gly Glu Arg
129      740          745          750
130 Gly Arg Asp Gly Ser Thr Arg Leu Val His Gly Phe Leu Ala Leu Val
131      755          760          765
132 Trp Asp Asp Leu Arg Ser Leu Cys Leu Phe Ser Tyr His Arg Leu Arg
133      770          775          780
134 Asp Leu Leu Leu Ile Val Ala Arg Ile Val Glu Leu Leu Gly Arg Arg
135 785          790          795          800
136 Gly Trp Glu Val Leu Lys Tyr Trp Trp Asn Leu Leu Gln Tyr Trp Ser
137      805          810          815
138 Gln Glu Leu Lys Asn Ser Ala Val Ser Leu Val Asn Val Thr Ala Ile
139      820          825          830
140 Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu Val Val Gln Arg Ile
141      835          840          845
142 Tyr Arg Ala Phe Leu His Ile Pro Arg Arg Ile Arg Gln Gly Phe Glu
143      850          855          860
144 Arg Ala Leu Leu
145 865
147 <210> SEQ ID NO: 2
148 <211> LENGTH: 5
149 <212> TYPE: PRT
150 <213> ORGANISM: Artificial Sequence
152 <220> FEATURE:
153 <223> OTHER INFORMATION: Hydrophobic peptide added to the terminus of the
154     antigenic peptide
156 <400> SEQUENCE: 2
157 Phe Leu Leu Ala Val
158 1          5
160 <210> SEQ ID NO: 3
161 <211> LENGTH: 5
162 <212> TYPE: PRT
163 <213> ORGANISM: Artificial Sequence

```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/938,406

DATE: 11/27/2001
TIME: 14:25:21

Input Set : D:\40646-20002.txt
Output Set: N:\CRF3\11212001\I938406.raw

```

165 <220> FEATURE:
166 <223> OTHER INFORMATION: Hydrophobic peptide added to the terminus of the
167     antigenic peptide
169 <400> SEQUENCE: 3
170 Val Ala Leu Leu Phe
171 1      5
173 <210> SEQ ID NO: 4
174 <211> LENGTH: 10
175 <212> TYPE: PRT
176 <213> ORGANISM: Artificial Sequence
178 <220> FEATURE:
179 <223> OTHER INFORMATION: Hydrophobic decapeptide
181 <400> SEQUENCE: 4
182 Gly Gly Tyr Cys Phe Val Ala Leu Leu Phe
183 1      5      10
185 <210> SEQ ID NO: 5
186 <211> LENGTH: 68
187 <212> TYPE: PRT
188 <213> ORGANISM: P. falciparum
190 <400> SEQUENCE: 5
191 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
192 1      5      10      15
193 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
194      20      25      30
195 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
196      35      40      45
197 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val Asp Pro
198      50      55      60
199 Asn Val Asp Pro
200 65
202 <210> SEQ ID NO: 6
203 <211> LENGTH: 20
204 <212> TYPE: DNA
205 <213> ORGANISM: Artificial Sequence
207 <220> FEATURE:
208 <223> OTHER INFORMATION: Synthetic linker
210 <400> SEQUENCE: 6
211 gatcccggt gactgactga
213 <210> SEQ ID NO: 7
214 <211> LENGTH: 20
215 <212> TYPE: DNA
216 <213> ORGANISM: Artificial Sequence
218 <220> FEATURE:
219 <223> OTHER INFORMATION: Synthetic linker
221 <400> SEQUENCE: 7
222 gatctcagtc agtcacccgg
224 <210> SEQ ID NO: 8
225 <211> LENGTH: 16
226 <212> TYPE: PRT

```

20

20

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/938,406

DATE: 11/27/2001

TIME: 14:25:21

Input Set : D:\40646-20002.txt

Output Set: N:\CRF3\11212001\I938406.raw

```

227 <213> ORGANISM: Artificial Sequence
229 <220> FEATURE:
230 <223> OTHER INFORMATION: Synthetic oligopeptide
232 <400> SEQUENCE: 8
233 Gly Asn Val Gln Ala Ala Lys Asp Gly Gly Asn Thr Ala Ala Gly Arg
234 1 5 10 15
236 <210> SEQ ID NO: 9
237 <211> LENGTH: 16
238 <212> TYPE: PRT
239 <213> ORGANISM: Artificial Sequence
241 <220> FEATURE:
242 <223> OTHER INFORMATION: Trypanosomal peptide pepG
244 <400> SEQUENCE: 9
245 Tyr Gly Gly Gly Cys Thr Gln Ile Thr Glu Pro Thr Cys Asn Ser Ser
246 1 5 10 15
248 <210> SEQ ID NO: 10
249 <211> LENGTH: 10
250 <212> TYPE: PRT
251 <213> ORGANISM: Artificial Sequence
253 <220> FEATURE:
254 <223> OTHER INFORMATION: Trypanosomal peptide pepM1
256 <400> SEQUENCE: 10
257 Tyr Gly Val Pro Val Ala Thr Gln Thr Gly
258 1 5 10
260 <210> SEQ ID NO: 11
261 <211> LENGTH: 12
262 <212> TYPE: PRT
263 <213> ORGANISM: Artificial Sequence
265 <220> FEATURE:
266 <223> OTHER INFORMATION: Trypanosomal peptide pepCM1
268 <400> SEQUENCE: 11
269 Cys Tyr Gly Val Pro Val Ala Gln Thr Gln Thr Gly
270 1 5 10
272 <210> SEQ ID NO: 12
273 <211> LENGTH: 30
274 <212> TYPE: PRT
275 <213> ORGANISM: Artificial Sequence
277 <220> FEATURE:
278 <223> OTHER INFORMATION: Trypanosomal peptide pepCM3
280 <400> SEQUENCE: 12
281 Cys Tyr Gly Val Pro Val Ala Gln Thr Gln Thr Gly Val Pro Val Ala
282 1 5 10 15
283 Gln Thr Gln Thr Gly Val Pro Val Ala Gln Thr Gln Thr Gly
284 20 25 30
286 <210> SEQ ID NO: 13
287 <211> LENGTH: 47
288 <212> TYPE: PRT
289 <213> ORGANISM: Artificial Sequence
291 <220> FEATURE:

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/938,406

DATE: 11/27/2001

TIME: 14:25:22

Input Set : D:\40646-20002.txt

Output Set: N:\CRF3\11212001\I938406.raw